

REMARKS

The above amendments to the above-captioned application along with the following remarks and a Request for Continued Examination (RCE) are being submitted as a full and complete response to the Official Action dated August 23, 2006. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due consideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 2-15 are under consideration in this application. Claims 2 and 7 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to correct formal errors and to more particularly define and distinctly claim applicant's invention. Claim 1 was previously canceled without prejudice or disclaimer.

The claims and the specification are being amended to correct formal errors and/or to better recite or describe the features of the present invention as claimed. All the amendments to the claims and the specification are supported by the specification. Applicant hereby submits that no new matter is being introduced into the application through the submission of this response.

Formality Rejection

Claims 7-10 and 13-15 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement.

Applicants respectfully contend that the negative recitation of "the recessed grooves AL ... so formed that they do not cut through a respective electrode" are clearly shown at least in the originally filed Fig. 1B such that it fully complies with the written description requirement.

Accordingly, the withdrawal of the outstanding informality rejection is in order, and is therefore respectfully solicited.

Allowable Subject Matter

Claims 2, 5-6 and 11-12 were allowed.

Prior Art Rejections

Claims 7-10 and 13-15 were rejected under 35 U.S.C. §103(a) as being unpatentable over US Application No. 2004/0174484 to Matsumoto (hereinafter “Matsumoto”) in view of US Patent No. 6,724,452 to Takeda et al. (hereinafter “Takeda”). This rejection has been carefully considered, but is most respectfully traversed.

The liquid crystal display device of the invention, as now recited in claim 7, comprises: an active matrix substrate SUB1 on which a plurality of gate lines GLs and a plurality of drain lines DLs which cross each other, switching elements which are formed at respective crossing portions of the gate lines and the drain lines DLs in a matrix array, pixel electrodes PXs which are driven by the switching elements and counter electrodes CTs which drive liquid crystal using an electric field generated between the counter electrodes CTs and the pixel electrodes PXs are formed; and another substrate SUB2 which faces the active matrix substrate by way of a liquid crystal layer. At least one of the pixel electrode PX (Figs. 8-13, 14B) and the counter electrode CT (Figs. 11A, 12-13, 14B) has a groove AL which is recessed along an extending direction of the drain lines DLs, said groove AL being formed in a central part of the respective electrode without cutting therethrough.

The groove on the counter electrode CT provides a shielding effect (Fig. 3), which is not available in Fig. 3 when the counter electrode CT maintains a flat plate without grooves (p. 12, 2nd paragraph). *“By forming the grooves in the counter electrode CT, the electric field generated at an end portion of the drain line DL is lowered downwardly. Accordingly, leaking of the electric field from the drain line DL to the pixel electrode PX can be suppressed (p. 13, last paragraph).”*

By forming the groove AL in such a fine or narrow pixel electrode PX, the contact area of the pixel electrode PX with the passivation layer PAS2 disposed below the pixel electrode PX is increased and hence, the peel-off of the pixel electrode PX is suppressed whereby the yield rate is enhanced (p. 17, 2nd paragraph).

Applicants respectfully contend that Matsumoto fails to teach or suggest such a “groove being recessed along an extending direction of the drain lines DLs, said groove AL is formed in a central part of the respective electrode without cutting therethrough”, as in the present invention.

As admitted by the Examiner (p. 3, line 13 of the outstanding Office Action), Matsumoto does not disclose the groove not being cut through. Takeda was relied upon by the Examiner to provide such a teaching. However, the depression 23A, 23b of Takeda (Fig.

94) is on the respective upper and lower conductive layers 62 (col. 49, lines 29-30), which are then laminated on the electrodes 12, 13. On the other hand, the groove AL of the invention is directly formed onto a pixel or counter electrode PX CT, rather than onto any conductive layers 62 as in Takeda.

In addition, as shown in Fig. 68, the depressions 23A, 23B (substituting protrusions 20A, 20B in Fig. 67A-C) are formed either at the edges of the cell electrode 13 or on the common electrode 12 opposed to the edge of the cell electrode 13 (col. 39, lines 15-16, lines 7-10), rather than a central part of the common or cell electrode 12, 13.

Applicants would further contend that the invention is distinguishable from Takeda's embodiment depicted in Fig. 33 in that this embodiment shows one of the protrusions 20B (Fig. 33) extending lengthwise/parallel with a drain line within each pixel 9 and on the center part thereof, and the protrusion 20B provides a shielding effect (col. 39, lines 17-23). In contrast to the present invention, Takeda's protrusion 20B is formed in a different layer from the pixel or counter electrode such that it is not directly formed onto a pixel or counter electrode as is the groove AL of the invention. In addition, Takeda's protrusion 20B provides only a shielding effect, but does not prevent the pixel or counter electrode from peeling off as does the groove AL of the invention (p. 17, lines 7-19).

The cited prior art references and their combinations fail to teach or suggest each and every feature of the present invention as recited in independent claim 7. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

Conclusion

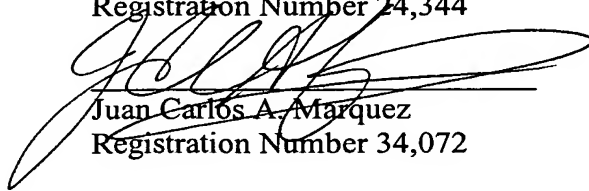
In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely. Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance

of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and telephone number indicated below.

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